



The Abdus Salam
**International Centre
for Theoretical Physics**



ICTP Strategic Plan Summary 2020-2024

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The mission of ICTP rests on three equally important foundational pillars:

- ICTP conducts world-class research in frontier areas of science and strives to maintain a conducive environment of scientific enquiry for the entire ICTP community.
- ICTP is dedicated to fostering growth of advanced studies and research in physical and mathematical sciences through high-level scientific programmes especially in support of excellence in the developing world to help bridge the knowledge divide.
- ICTP is committed to science advocacy and international cooperation through science by providing an international forum of scientific contact for scientists from all countries.

This three-fold mandate with a commitment to the Sustainable Development Goals is what makes ICTP unique among the finest scientific institutions around the globe.

ICTP's vision for the coming years is guided by three elements central to its mission: scientific excellence, scientific capacity building in developing countries, and international cooperation. To turn this vision into reality, ICTP will harness its existing strengths, consolidate and renew structures that have weakened over the years, find new avenues to expand the resources, and enhance the synergies with international partners. New avenues for funding must be explored to undertake further expansions, which makes fundraising an important component of the strategy. Actions for the next five years are outlined below.

1. Scientific Excellence

To nurture an environment that will enable ICTP to achieve greater scientific accomplishments and new breakthroughs at the frontiers of science.

ICTP attracts thousands of scientists each year who benefit from the Centre's short and long-term programmes and collaborative activities because of its scientific excellence. Curiosity-driven, blue-sky science is of paramount importance to the mission of ICTP even as it strives to address itself to scientific questions of more urgent and serious concerns such as climate change, peaceful applications of nuclear science, artificial intelligence, or epidemiology. Maintaining and enhancing this excellence is essential for the mission.

- Consolidate core areas of ICTP research and expand into exciting emerging fields that can build on this core of excellence, such as machine learning, quantitative life sciences, and quantum computing.
- Explore new research areas in emerging scientific fields, through new initiatives and local institutes, to enhance the delivery of ICTP's global mission

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- Upgrade High Performance Computing facilities with the aim to develop a Consortium for Scientific Computing exploring new areas in Machine Learning and Data Science.
 - Introduce more intensive activities that can bring scientists from the developing and developed worlds together for sustained long-term collaborations.
 - Create research professorships and chairs to attract eminent scientists to ICTP
 - Take proactive steps toward greater diversity and inclusion at ICTP.
 - Restructure ICTP's Applied Physics Section as a unit for Science, Technology, and Innovation; and expand its activities through new initiatives in applied science and advanced instrumentation.
 - Upgrade the infrastructure of ICTP, including scientific and academic resources.

2. Scientific Capacity Building and Partnerships

To create and expand a broader 'International Science Alliance' that can help overcome the barriers of geography, gender, class or ethnicity by building capacity in basic sciences, especially in developing countries, through quality scientific programmes, training and education.

As an international institute dedicated to science and education, ICTP will aim to enhance its education and training activities to support young and mid-career scientists from developing countries, to provide them with continuing advanced training necessary for long and productive scientific careers. In the post-pandemic world, it is necessary to incorporate novel initiatives for online and regional connectivity into our planning.

- Strengthen and expand North-South and South-South collaborations, through strategic and programmatic engagement with ICTP's Category-II partner institutes.
- Strengthen and enhance Postgraduate Diploma and Masters Programmes.
- Strengthen and reorient ICTP programmes.
- Mobilize ICTP's global community through online engagement using novel digital technologies or initiatives like regional chapters to reinforce ICTP's mission.
- Offer open access to computational and information resources to scientists from the developing world.

3. International Cooperation and Science Advocacy

To increase ICTP's role as an international focal point for scientific research, education, cooperation, and outreach, with active engagement in science advocacy and international cooperation.

Science is a shared language that transcends geographic boundaries. A robust base in basic sciences and more broadly a culture of science and fact-based enquiry is an essential precondition to meet the Sustainable Development Goals with informed development policies. ICTP enjoys high international recognition as a premier scientific institution with the support of the government of Italy, IAEA, and UNESCO and has a strong track record in science advocacy and international cooperation through science.

- Strengthen the Physics Without Frontiers (PWF) programme.
- Strengthen the ICTP-IAEA partnership.
- Strengthen the ICTP-UNESCO partnership.

RESOURCES AND FUNDRAISING

ICTP has an impressive track record of excellence in research and a compelling global mission that has great appeal to potential philanthropists who are similarly excited about the new frontiers in science and the role of basic sciences in development and international cooperation. This potential for fundraising for expanding the mission of ICTP will be explored and developed seriously. ICTP is undertaking detailed planning which can aid in approaching potential donors with specific requests.

ICTP is planning initiatives that would support its fundraising efforts and at the same time help to build and strengthen its community of alumni and affiliates. These activities are tentatively scheduled to take place in 2021 and 2022. The planned activities would fall under the umbrella of a Year of Science Without Borders. The kick-off event for the Year of Science Without Borders will be the commencement ceremony for the Postgraduate Diploma Class 2021 in August 2021. It will celebrate the 30th anniversary of the ICTP Diploma programme which has graduated over 1000 students from nearly 100 countries. The Year of Science Without Borders will be dedicated to thematic events coordinated also with the fundraising strategy and will culminate in an on-campus ICTP Reunion event. At that event, a high-profile conference of very eminent scientists issuing a 'Trieste Declaration on Science Without Borders' is also being considered.